

OIPE

RAW SEQUENCE LISTING

DATE: 05/20/2002

PATENT APPLICATION: US/09/905,173

TIME: 14:07:46

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\05202002\I905173.raw



2 <110> APPLICANT: DIVERSA CORPORATION

3 SHORT, Jay M.

4 WARREN, Patrick V.

SWANSON, Ronald V.

MATHUR, Eric J.

ENTERED

52

29

8 < 120 > TITLE OF INVENTION: ENZYMES HAVING TRANSAMINASE AND AMINOTRANSFERASE ACTIVITY AND METHODS OF

9 USE THEREOF

11 <130> FILE REFERENCE: DIVER1240-7

13 <140> CURRENT APPLICATION NUMBER: US 09/905,173

14 <141> CURRENT FILING DATE: 2001-07-12

16 <150> PRIOR APPLICATION NUMBER: US 09/412,184

17 <151> PRIOR FILING DATE: 1999-10-04

19 <150> PRIOR APPLICATION NUMBER: US 09/389,537

20 <151> PRIOR FILING DATE: 1999-09-02

22 <150> PRIOR APPLICATION NUMBER: US 08/646,590

23 <151> PRIOR FILING DATE: 1996-05-08

25 <150> PRIOR APPLICATION NUMBER: US 08/599,171

26 <151> PRIOR FILING DATE: 1996-02-09

28 <150> PRIOR APPLICATION NUMBER: US 09/481,733

29 <151> PRIOR FILING DATE: 2000-01-11

31 <150> PRIOR APPLICATION NUMBER: US 09/069,226

32 <151> PRIOR FILING DATE: 1998-04-27

34 <160> NUMBER OF SEQ ID NOS: 40

36 <170> SOFTWARE: PatentIn version 3.0

38 <210> SEQ ID NO: 1

39 <211> LENGTH: 52

40 <212> TYPE: DNA

41 <213> ORGANISM: Artificial sequence

43 <220> FEATURE:

44 <223> OTHER INFORMATION: Primer for PCR

46 <400> SEQUENCE: 1

47 ccgagaattc attaaagagg agaaattaac tatgattgaa gaccctatgg ac

50 <210> SEQ ID NO: 2

51 <211> LENGTH: 29

52 <212> TYPE: DNA

53 <213> ORGANISM: Artificial sequence

55 <220> FEATURE:

56 <223> OTHER INFORMATION: Primer for PCR

58 <400> SEQUENCE: 2

59 cttggactct cttcacgatt tctagaagc

62 <210> SEQ ID NO: 3

63 <211> LENGTH: 52

64 <212> TYPE: DNA

RAW SEQUENCE LISTING

DATE: 05/20/2002 TIME: 14:07:46

31

30

31

PATENT APPLICATION: US/09/905,173

Input Set : A:\PTO.VSK.txt

- 65 <213> ORGANISM: Artificial sequence
- 67 <220> FEATURE:
- 68 <223> OTHER INFORMATION: Primer for PCR
- 70 <400> SEQUENCE: 3
- 71 ccgagaattc attaaagagg agaaattaac tatggacagg cttgaaaaag ta 52
- 74 <210> SEQ ID NO: 4
- 75 <211> LENGTH: 31
- 76 <212> TYPE: DNA
- 77 <213> ORGANISM: Artificial sequence
- 79 <220> FEATURE:
- 80 <223> OTHER INFORMATION: Primer for PCR
- 82 <400> SEQUENCE: 4
- 83 aagaatctct tcgaatcgac ttctagaagg c
- 86 <210> SEQ ID NO: 5
- 87 <211> LENGTH: 52
- 88 <212> TYPE: DNA
- 89 <213> ORGANISM: Artificial sequence
- 91 <220> FEATURE:
- 92 <223> OTHER INFORMATION: Primer for PCR
- 94 <400> SEQUENCE: 5
- 95 ccgacaattg attaaagagg agaaattaac tatgtgggaa ttagacccta aa 52
- 98 <210> SEQ ID NO: 6
- 99 <211> LENGTH: 30
- 100 <212> TYPE: DNA
- 101 <213> ORGANISM: Artificial sequence
- 103 <220> FEATURE:
- 104 <223> OTHER INFORMATION: Primer for PCR
- 106 <400> SEQUENCE: 6
- 107 tcgaactttt tctccacatc cctaggaggc
- 110 <210> SEQ ID NO: 7
- 111 <211> LENGTH: 52
- 112 <212> TYPE: DNA
- 113 <213> ORGANISM: Artificial sequence
- 115 <220> FEATURE:
- 116 <223> OTHER INFORMATION: Primer for PCR
- 118 <400> SEQUENCE: 7
- 119 ccgacaattg attaaagagg agaaattaac tatgacatac ttaatgaaca at 52
- 122 <210> SEQ ID NO: 8
- 123 <211> LENGTH: 31
- 124 <212> TYPE: DNA
- 125 <213> ORGANISM: Artificial sequence
- 127 <220> FEATURE:
- 128 <223> OTHER INFORMATION: Primer for PCR
- 130 <400> SEQUENCE: 8
- 131 gaactttccc tgaagagtat ttctagaagg c
- 134 <210> SEQ ID NO: 9
- 135 <211> LENGTH: 52
- 136 <212> TYPE: DNA
- 137 <213> ORGANISM: Artificial sequence

RAW SEQUENCE LISTING DATE: 05/20/2002 PATENT APPLICATION: US/09/905,173 TIME: 14:07:46

Input Set : A:\PTO.VSK.txt

139	9 <220> FEATURE:	
140) <223> OTHER INFORMATION: Primer for PCR	
142	2 <400> SEQUENCE: 9	
	3 ccgagaattc attaaagagg agaaattaac tatgcggaaa ctggccgagc gg	52
146	5 <210> SEQ ID NO: 10	
147	7 <211> LENGTH: 31	
148	3 <212> TYPE: DNA	
149	9 <213> ORGANISM: Artificial sequence	
15:	L <220> FEATURE:	
152	2 <223> OTHER INFORMATION: Primer for PCR	
154	4 <400> SEQUENCE: 10	
15	5 aactagette geegtgaaat teetaggagg e	31
158	3 <210> SEQ ID NO: 11	
159	9 <211> LENGTH: 52	
160	O <212> TYPE: DNA	
163	l <213> ORGANISM: Artificial sequence	
16	3 <220> FEATURE:	
164	4 <223> OTHER INFORMATION: Primer for PCR	
160	5 <400> SEQUENCE: 11	
16	7 ccgacaattg attaaagagg agaaattaac tatgtgcggg atagtcggat ac	52
176	O <210> SEQ ID NO: 12	
17	1 <211> LENGTH: 31	
173	2 <212> TYPE: DNA	
17	3 <213> ORGANISM: Artificial sequence	
17	5 <220> FEATURE:	
170	5 <223> OTHER INFORMATION: Primer for PCR	
178	3 <400> SEQUENCE: 12	
179	9 ttttgccagt gccaccttat ttctagaagg c	31
183	2 <210> SEQ ID NO: 13	
183	3 <211> LENGTH: 52	
184	4 <212> TYPE: DNA	
18	5 <213> ORGANISM: Artificial sequence	
18	7 <220> FEATURE:	
	3 <223> OTHER INFORMATION: Primer for PCR	
19	O <400> SEQUENCE: 13	
19:	l ccgacaattg attaaagagg agaaattaac tatgataccc cagaggatta ag	52
19	4 <210> SEQ ID NO: 14	
19	5 <211> LENGTH: 31	
	5 <212> TYPE: DNA	
19	7 <213> ORGANISM: Artificial sequence	
19	9 <220> FEATURE:	
20	O <223> OTHER INFORMATION: Primer for PCR	
20	2 <400> SEQUENCE: 14	
20	3 agggaaagtt cgagagaaat ttctagaagg c	31
20	5 <210> SEQ ID NO: 15	
20	7 <211> LENGTH: 52	
	8 <212> TYPE: DNA	
	9 <213> ORGANISM: Artificial sequence	
21	1 <220> FEATURE:	

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/905,173

DATE: 05/20/2002 TIME: 14:07:46

Input Set : A:\PTO.VSK.txt

212 <223> OTHER INFORMATION: Primer for PCR					
214 <400> SEQUENCE: 15 215 ccgagaattc attaaagagg agaaattaac tatgaagccg tacgctaaat at	52				
215 ccgagaattc attaaagagg agaaattaac tatgaagccg tacgetaaac ac					
218 <210> SEQ ID NO: 16					
219 <211> LENGTH: 31 220 <212> TYPE: DNA					
221 <213> ORGANISM: Artificial sequence					
223 <220> FEATURE:					
224 <223> OTHER INFORMATION: Primer for PCR					
226 <400> SEQUENCE: 16					
20 (400) SEQUENCE: 10 27 acctagtgag gacacataat ctctagaagg c 31					
230 <210> SEQ ID NO: 17					
31 <211> LENGTH: 1245					
32 <212> TYPE: DNA					
233 <213> ORGANISM: Aquifex					
235 <400> SEQUENCE: 17					
236 atgattgaag accetatgga ctgggetttt cegaggataa agagactgee teagtatgte	60				
238 thotototog thaacgaact caagtacaag ctaaggogtg aaggogaaga tgtagtggat	120				
240 cttggtatgg gcaatcctaa catgcctcca gcaaagcaca taatagataa actctgcgda	180				
242 gtggctcaaa agccgaacgt tcacggatat tctgcgtcaa ggggcatacc aagactgaga	240 300				
244 aaggetatat gtaactteta egaagaaagg taeggagtga aactegaeee tgagagggag	360				
246 gctatactaa caatcggtgc aaaggaaggg tattctcatt tgatgcttgc gatgatatct	420				
248 cogggtgata cggtaatagt toctaatooc acctatocta ttoactatta cgctoccata	480				
250 attgcaggag gggaagttca ctcaataccc cttaacttct cggacgatca agatcatcag	540				
252 gaagagtttt taaggaggct ttacgagata gtaaaaaccg cgatgccaaa acccaaggct	600				
254 gtcgtcataa gctttcctca caatccaacg accataacgg tagaaaagga cttttttaaa	660				
256 gaaatagtta agtttgcaaa ggaacacggt ctctggataa tacacgattt tgcgtatgcg	720				
258 gatatagect ttgacggtta caageceee tcaatacteg aaatagaagg tgetaaagae	780				
260 gttgcggttg agctctactc catgtcaaag ggcttttcaa tggcgggctg gagggtagcc	840				
262 tttgtcgttg gaaacgaaat actcataaaa aaccttgcac acctcaaaag ctacttggat	900				
264 tacggtatat ttactcccat acaggtggcc tctattatcg cattagagag cccctacgaa	960				
266 atcgtggaaa aaaccgcaaa ggtttaccaa aaaagaagag acgttctggt ggaagggtta	1020				
268 aacaggeteg getggaaagt aaaaaaacet aaggetacea tgttegtetg ggeaaagatt 270 eegaatgga taaatatgaa etetetggae tttteettgt teeteetaaa agaggegaag	1080				
270 occgaatgga taaatatgaa ototooggae tetecotoge tootoogaa agggtacgt aaggtttgga 272 gttgcggtat occcgggtgt gggctttggt cagtacggag aggggtacgt aaggtttgca	1140				
272 gttgeggtat edeegggtgt gggetttggt eagtaeggag agggetataagga agcettcaga 274 ettgtagaaa atgaacacag gatcagacag getataaggg gaataaggaa agcettcaga	1200				
274 cttgtagaaa atgaacacay gatcagacay getacaayyy gatcaayyy 276 aaactccaga aggagaggaa acttgaacct gagagaagtg cttaa	1245				
276 adactecaya ayyayayaa aceeyaacoo yayayaayay					
279 <210> SEQ ID NO: 18 280 <211> LENGTH: 1122					
281 <212> TYPE: DNA 282 <213> ORGANISM: Aquifex					
284 <400> SEQUENCE: 18					
285 atggacagge ttgaaaaagt atcaccette atagtaatgg atateetage teaggeedag	60				
287 aagtacgaag acgtagtaca catggagata ggagagcccg atttagaacc gtctcccaag	120				
289 gtaatggaag ctctggaacg tgcggtgaag gaaaagacgt tcttctacac ccctgctctg	180				
201 ggactctggg aactcaggga aaggatatcg gagttttaca ggaaaaagta cagcgttgaa	240				
203 gtttctccag agagagtcat cgtaactacc ggaacttcgg gagcgtttct cgtagcctac	300				
295 gcggtaacac taaatgcggg agagaagata atcctcccag acccctctta ccctgttac	360				
297 aaaaactttg cctacctctt agacgctcag ccggttttcg taaacgttga caaggaaacg	420				



PATENT APPLICATION: US/09/905,173

DATE: 05/20/2002 TIME: 14:07:46

Input Set : A:\PTO.VSK.txt

non anttaggang tangganaga gatg:	tagaa gacattgatg cgaaagccct tcacatttcc 480			
299 adilacyddy ladyddaga garg	etctac tcacctgaaa ccctgaagga acttgcggag 540			
301 tegectedad accetacygy caca	tcata tccgacgaga tttaccacgg actcgtttac 600			
303 tactgcgady agaagggtat gtac	gagtte tetgacaggg ctattgteat aaacgggttt 660			
305 gaaggtaggg agcacacage activ	tragg atagggtgga tgatagttcc ggaagaactc 720			
30/ totalgrace totylatyce aggressiant satt	cagaac gtatttatat ctgccccgac gctcagtcag 780			
309 gtgagaaagg cggaaatagt aatt	acgag tatttggaga aggtaagaaa aacctttgaa 840			
311 tacgeegeee tigaggetti tyat	gaactg aaaaaactct tcaagataga cgcgaaacct 900			
313 gagaggagga acticctita tygg	acata agtgattact ccacagatag ctacgaattt 960			
315 cagggagett titacgtaty gycar	eggeta agggetace codedyttag otttggaaaa 1020			
317 gctttaaaac ttttaaggga ggcg	agggtg gcggtaacgc ccggggtgga ctttggaaaa 1020 tttgct tatacgagaa agatagaaga acttaaggag 1080			
319 aacaaaacga aggagtatat aagg	cityce tatacgagaa agatagaaga arranggag			
321 ggcgttgaaa ggataaagaa gttc	llagag aagettaget ga			
324 <210> SEQ ID NO: 19				
325 <211> LENGTH: 1362				
326 <212> TYPE: DNA				
327 <213> ORGANISM: Aquifex				
329 <400> SEQUENCE: 19	otogaa aagtgggaca aggagtactt ctggcatcca 60			
330 atgtgggaat tagaccctaa aacg	cicyaa aagegggaea aggageaeee eeggeneee			
332 tttacccaga tgaaagtcta caga	gaagaa gaaaaccega caccegaacg caasaasa-			
334 gtttacctgt gggacatata cggc	ayyaay cacacagacy oodoos			
336 aacgtccacg gacataacca ccct	adacty adcadegedy codegadate jest jest			
338 gtageteaca caactactet ggga	age coo ducy cools			
340 cttgtagaaa tttctcctga agga	ctadac adygeocecc dococyanya - 55-5-55			
342 gcagtagaga tagcgataaa gatg	defeat caceacean alamanally and			
344 aaaaacgttt tcataacgct ttcc	gaagee caccacgggg acaccgcagg ag-55-5			
346 gtagggggta tagaactctt ccac	ggaace cacaaagaco coccerrii jiii			
348 ctcccatctc cttacctgta ctgc	aaygaa aagcacgggg aaccccgcc - 5-5 5			
350 gcagatttat taaaacaact ggaa	gatate etgaageege gggaagaeae egestis			
352 attatggaag cgggaattca ggca	geegeg ggaatgetee cetteeet jjj			
354 aaaggcgtaa gggagcttac gaag	addide guedeceda egalengelega - 555			
356 acgggatttg gcaggacggg aacg	atyttt tactytydd aggaaggag			
358 tttatgtgtc taggtaaggg tata	accyga gggcacceco ogorogogo y			
360 acggacgagg tgttcaatgc cttt	clayge gageeegggg aggodaagoa ooolina			
362 gggcacacct acactggaaa taac	cicaco edecedaca caracadama a a a			
364 tttgaggaag aaagaacttt agag	adyctc caaccadaga cadagoccos anny			
366 cttcaggagt tctgggaact caag	cacyce ggagacycea gaeagecagg			
368 ggaatagagc tggtgaagga caaa	gaaaag ggagaaccee ecoceacgg egaaaggaes			
370 ggatttaagg tggcttacaa gtgc	agggaa aaaggggese eeeegagaa			
372 gttatggtat tgatgatgcc tctt	graded gaggaagaog aaargameen system y			
374 acacttaaat gggcaattaa agag	cttgaa aaagaggtgt ag			
377 <210> SEQ ID NO: 20				
378 <211> LENGTH: 1032				
379 <212> TYPE: DNA				
380 <213> ORGANISM: Aquifex				
382 <400> SEQUENCE: 20				
383 atgacatact taatgaacaa ttad	gcaagg ttgcccgtaa agtttgtaag gggaaaaggt 60			
385 gtttacctgt acgatgagga agga	aaggag tatcttgact ttgtctccgg tataggcgtc 120			
387 aactccctcg gtcacgctta ccca	aaactc acagaagctc taaaagaaca ggttgagaaa 180			
389 ctcctccacg tttcaaatct ttad	gaaaac ccgtggcagg aagaactggc tcacaaactt 240			

RAW SEQUENCE LISTING ERROR SUMMARY PATENT APPLICATION: US/09/905,173

DATE: 05/20/2002 TIME: 14:07:47

Input Set : A:\PTO.VSK.txt

Output Set: N:\CRF3\05202002\I905173.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the $\langle 220 \rangle$ to $\langle 223 \rangle$ fields of each sequence which presents at least one n or Xaa.

Seq#:35; N Pos. 986 Seq#:36; Xaa Pos. 329

Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 8